



# Environmental Show of the South

*Going **Green** and Saving **Green**- The environmental and financial benefits of exposed geosynthetics*

# THE MISSION

## What is the mission of a landfill?

Researching various landfill mission statements we found plenty of commonality:

- Best management practices
- Protect the environment
- Servicing and protecting our citizens
- Promote education and cooperation with the surrounding community
- Safe and economical
- Cost effective
- Sound business judgement
- Self-sustaining
- Commitment to excellence





# THE MISSION

## Boiling the mission down to a single statement:

The mission of a landfill is to provide a safe and environmentally sound facility that is self-sustaining and economically viable.



# HOW CAN EXPOSED GEOSYNTHETICS HELP ACCOMPLISH THE MISSION?



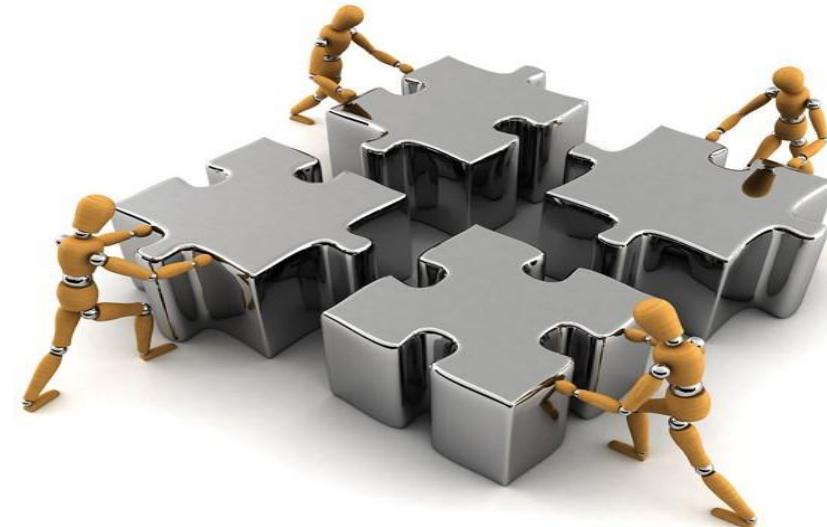
## 1 UNDERSTANDING WHAT AN EXPOSED COVER SYSTEM IS AND THE BENEFITS



## 2 PLANNING AND PREPARATION



## 3 EXECUTION



# WHAT IS AN EXPOSED COVER SYSTEM AND WHAT ARE THE BENEFITS?



# APPLICATIONS

## Two Main Applications

Rain Covers



Interim Caps/Closures







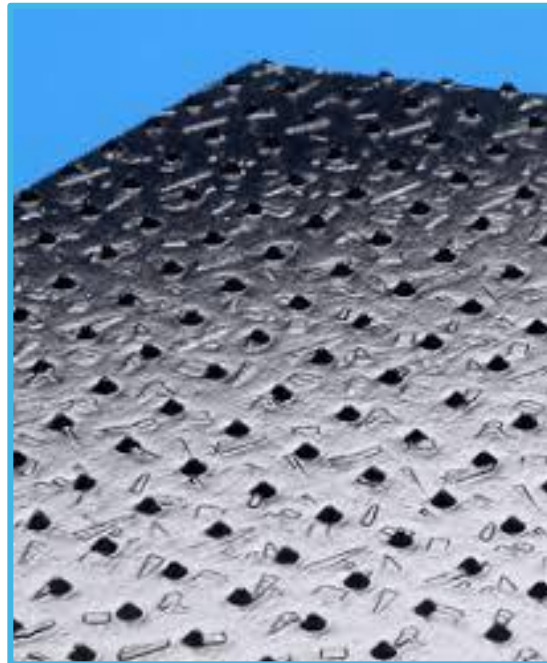




# MATERIAL OPTIONS



Reinforced Geomembranes  
*8, 12, 20 and 24 mil*



HDPE/LLDPE Geomembranes  
*30, 40, 60 & 80 mil*



HDPE/LLDPE Integrated  
Drainage Geomembranes  
*50 & 60 mil*

# BENEFITS

## Rain Cover Benefits:

- Reduce/eliminate erosion of protective cover material
- Segregate storm water and leachate in unused portions of a cell
- Reduce manpower and treatment costs to pump, haul and treat unnecessary leachate



## Exposed Cap Benefits:

- Reduce/eliminate soil loss/erosion
- Clean storm water runoff and positive drainage
- Capture odors and reduce/eliminate odor complaints
- Reduce greenhouse gas emissions
- Increased quality/quantity of harvested gas
- Reduced leachate production
- Reduce/eliminate blown litter
- Reduce maintenance costs (mowing, erosion, seeding, etc)



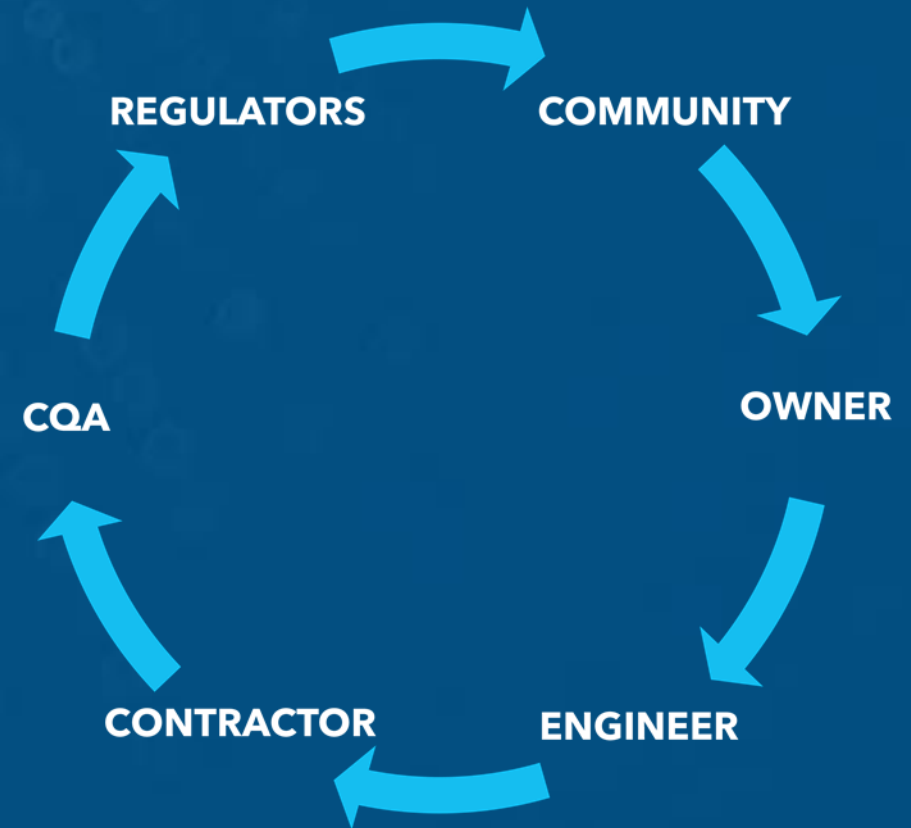
# PLANNING AND PREPARATION

# PRE-PROJECT PLANNING AND PREPARATION



## Things to think about:

- Does an EGC make economic sense for my site?
- Does an EGC make environmental sense for my site?
- What issues does an EGC solve for my site?
  - Erosion
  - Greenhouse gas emissions
  - Leachate reduction
  - Capturing odors
- Does this project have a positive impact on all stakeholders?



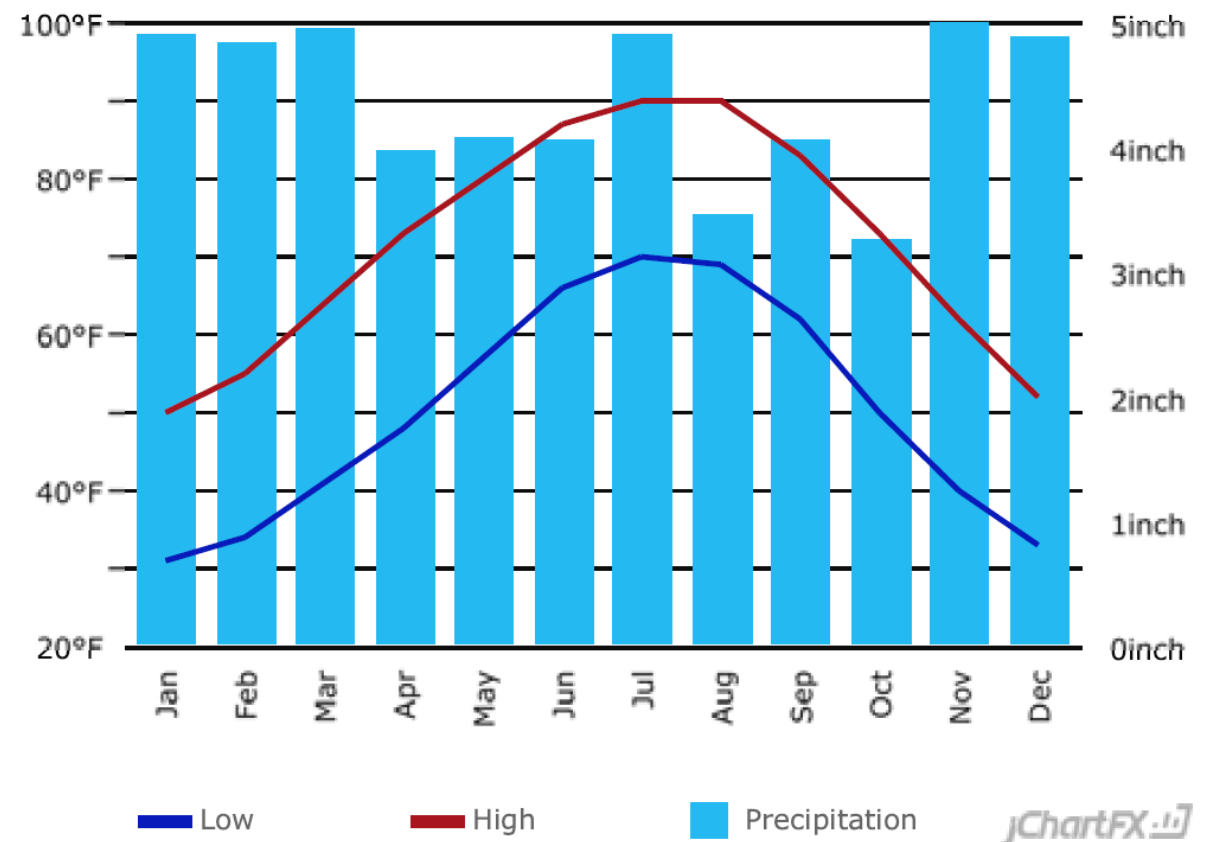


# COST/BENEFIT

## ANALYSIS

- 10 acre open lined area x 27,154 gallons/inch of rain/acre x 52.44 inch/year = 14,239,557.6 gallons annually
- Average disposal cost of \$.03/gallon and hauling costs of \$.03/gallon = \$.06/gallon
- 14,239,557.6 gallons x \$.06 = **\$854,373.456** annual leachate treatment cost
- 10 acre rain cover supplied and installed = **\$217,800.00**

Chattanooga Climate Graph - Tennessee Climate Chart



# DESIGN

## CONSIDERATIONS

- Does my permit allow the use of a EGC?
- Do local, state, federal regulations allow the use of a EGC?
- Design life
- Material compatibility
- Aesthetics
- Increased storm water volume and velocity
- Wind Uplift
- Termination details
- Site geometry and access
- Animal damage





# EXECUTION

# DEPLOYMENT



**Traditional geomembranes are installed off a roll and positioned into place**



**Reinforced geomembranes can be prefabricated into large panels requiring less field seaming**

# SEAMING



Traditional geomembranes and reinforced geomembranes thicker than 20 mils can be heat seamed.



*Wedge Welder*



Thinner reinforced geomembranes are sewn together



*Sewing Machine*



# BALLASTING



Wind Defender



Sandbags/Rope



Interim Anchor  
Trenches



Earth Anchors

# WIND DEFENDER



## What is Wind Defender?

Wind Defender is a reinforced geotextile windscreen made of knitted, green, UV stabilized HDPE filament. Wind Defender is utilized as a ballast system to protect underlying geosynthetics from wind damage and prolonged UV exposure.







# WIND DEFENDER



- Superior Performance
- Low Maintenance
- Fast and Safe Installation
- Reusable
- 60% UV Blocking
- 10 Year Warranty
- Aesthetically Pleasing
- Recyclable



# QUESTIONS?

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